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ABSTRACT

Recently researchers have reported a relationship between body image and depression in early adolescents. This longitudinal study evaluated the importance of body image in the etiology of early adolescent girls' depression. Depression scores of female students (N=505) in grades 6 through 9 were assessed twice, in the fall (T1) and the spring (T2) of a school year. Groups of girls were identified as girls who were depressed at T1, some of whom remained depressed (Persistent Depressed girls, and some of whom improved by T2 (Remitting Depressed girls). Second were girls who were non-depressed at T1, some of whom remained non-depressed (Stable Non-Depressed girls) and some of whom became depressed by T2 (Onset Depressed girls). Discriminant analyses indicated that body image at T1 was more important to the prediction of persistence of depression (i.e., to discriminating Persistent Depressed from Remitting Depressed girls) than to the prediction of onset of depression (i.e., to discriminating Onset Depressed from Stable Non-Depressed girls). Results, therefore, clarify the relation between body image and depression and demonstrate the heuristic value of discriminating questions of onset and persistence in studies of the etiology of adolescent girls' depression. It seems wise to adopt the perspective that the etiology of adolescent depression will entail a complex interactive model, involving a number of biological, psychological, and/or social variables. (Author/ABL)

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Abstract

The importance of body image in the etiology of early adolescent girls' depression was evaluated in a longitudinal study. Depression scores of over 500 girls were assessed twice, in the fall (T1) and spring (T2) of a school year, and groups of girls were identified as follows. First were girls who were depressed at T1, some of whom remained depressed (Persistent Depressed girls), and some of whom improved by T2 (Remitting Depressed girls). Second were girls who were non-depressed at T1, some of whom remained non-depressed (Stable Non-Depressed girls), and some of whom became depressed by T2 (Onset Depressed girls). Discriminant analyses indicated that body image at T1 was more important to the prediction of <u>persistence</u> of depression (i.e., to discriminating Persistent Depressed from Remitting Depressed girls) than to the prediction of <u>onset</u> of depression (i.e., to discriminating Onset Depressed from Stable Non-Depressed girls). Results, therefore, clarify the relation between body image and depression and demonstrate the heuristic value of discriminating questions of onset and persistence in studies of the etiology of adolescent girls' depression.

A Longitudinal Analysis of Body Image as a Predictor of the

Onset and Persistence of Adolescent Girls' Depression

Recently, a number of investigators have reported a relation between body image and depression in early adolescents (Rierdan, Koff, & Stubbs, 1987; Rierdan, Koff, & Stubbs, 1988) and late adolescents (Goldberg & Folkins, 1974; Marsella, Shizuru, Brennan, & Kameoka, 1981; Noles, Cash, & Winstead, 1985; Teri, 1982). In the most detailed analysis, Rierdan et al. (1987) reported that moderately to severely depressed girls were less satisfied with their bodies overall and viewed their bodies as less attractive, less competent, and less a familiar part of the self than their non- or minimally depressed peers.

All of the studies cited above, including Rierdan et al. (1987), involved cross-sectional analyses, so no conclusions could be drawn regarding the temporal, let alone causal, relation between poor body image and depressive symptomatology. Longitudinal data, such as will be presented in this report, are necessary in order to begin to clarify the causative contribution of body image to early adolescent girls' depression.

As Rierdan et al. (1987) noted, the confluence of several lines of developmental research and theory implicates poor body image in the etiology of adolescent depression, particularly for girls. At the same time in early adolescence that rates of depression appear to increase and gender differences begin to be observed (e.g., Sroufe & Rutter, 1984), a normative developmental task for girls and for boys is to assimilate pubertal change into a reorganized, and positively valued, body image. This task is more difficult for girls than for boys, since at the same time that girls are more concerned about attractiveness than boys (Simmons & Rosenberg, 1975), they are also less satisfied with their appearance (Tobin-Richards, Boxer, & Petersen, 1983). As noted above, research findings are consistent with the hypothesis that emerged from the above set of theoretical and empirical statements: Depression and poor body image have been repeatedly been found to be related in adolescent girls (e.g., Rierdan et al., 1987; Teri, 1982). However, specific directional hypotheses about the importance of body image to adolescent girls' depression have not yet been directly tested.

In considering an investigation of a possible causal connection between body image and depression, we do not expect, on theoretical (Cf., Cicchetti & Schneider-Rosen, 1984) or empirical grounds, that body image (or any other

biological, psychological, or social variable) might constitute a single, radical (i.e., necessary and sufficient) cause of adolescent depression. Rather, the investigation of the significance of the single variable of body image for adolescent depression is seen as a matter of determining to what degree body image contributes to, or is predictive of, depression.

In pursuing this issue, a number of specific questions may be asked. Two important ones are (a) to what degree does body image account for the onset of depression; (b) to what degree does body image account for the persistence of depression. Given wide variations in length of depressive episodes among children and adolescents, as documented by Kovacs, Feinberg, Crouse-Novak, Paulauskas, and Finkelstein (1984), there is an empirical, as well as conceptual, basis for distinguishing between questions of onset and persistence.

Since the goals of this research are to assess the impact of body image in relation to (a) the onset and (b) the persistence of early adolescent girls' depression, a longitudinal study was undertaken. A sample of over 500 early adolescent girls was tested twice, in the fall (T1) and spring (T2) of a school year. On the basis of scores at both test occasions on the Beck Depression Inventory, Short Form, the following groups of girls were identified. First were two groups of girls who were not depressed at T1, some of whom remained non-depressed (Group 1A: Stable Non-depressed), and some of whom became depressed by T2 (Group 1B: Onset Depressed). Second were two groups of girls who were depressed at T1, some of whom remained depressed (Groups 2A: Persistent Depressed), and some of whom improved by T2 (Group 2B: Remitting Depressed). Analyses determined the degree to which quality of body image at T1 could predict depressive status at T2, i.e., could predict onset and persistence of depression.

Method

Subjects

Subjects were 505 girls (M=13.17 yrs.), part of a sample of 587 white, public school students from three middle-class suburbs of Boston who participated in a large-scale project concerning the physical, psychological, and interpersonal changes associated with adolescence. The 505 girls in this study were those who provided measures of depression in both the fall and spring of a school year. There were 117 girls in grade 6, 111 girls in grade 7, 108 girls in grade 8, and 169 girls in grade 9.

Prior to data collection, the nature of the project was explained, the confidentiality of the results was assured, and consent was obtained. Sixty-two percent of the total population of girls in grades 6 through 9 in the three towns sampled had permission to participate, yielding a sample of 587 subjects.

Measures and Procedure

Questionnaires, which included measures of various aspects of biological, personality, and social development, were administered by two female

experimenters to groups of girls within school settings in the fall (T1) and spring (T2) of a school year, with six months intervening. Testing at both T1 and T2 required two class periods on two different days. Measures pertinent to the focus of this report are described below. Fuller descriptions may be found in Rierdan et al. (1987).

Beck Depression Inventory, short form (BDI-s) (Beck & Beck, 1972). This measure assesses level of depression in terms of the degree to which 13 symptoms are endorsed by the subject. Scores on the BDI-s can range from 0 through 39, with categories of depression defined by Beck & Beck (1972) as follows: scores of 0 through 4, no or minimal depression; 5 through 7, mild depression; 8 through 15, moderate depression; ≥16, severe depression. In this sample of 505 subjects, tes-retest reliability for the BDI-s was acceptable (r = .52) and internal consistency was high (T1: α = .86; T2: α = .88).

On the basis of BDI-s scores from both fall and spring testings, four subject groups were defined:

Group 1A: Stable Non-Depressed (scores 0-4 at both T1 and T2, n=258);

Group 1B: Onset Depressed (scores 0-4 at T1 and ≥8 at T2, n=24);

Group 2A: Persistent Depressed (scores ≥8 at both T1 and T2, n=58);

Group 2B: Remitting Depressed (scores ≥8 at T1 and 0-4 at T2, n=34).

Subjects who received scores in the mildly depressed range at either T1 or T2 were not included in the analysis, in keeping with criteria used in previous research (e.g., Rierdan et al., 1987).

Body Cathexis Scale, modified form. This 17-item measure is derived from the 46-item instrument developed by Secord and Jourard (1953). Subjects indicate their degree of satisfaction with 17 aspects of the body on 5-point scales, where lower scores indicate greater satisfaction. A total body satisfaction score is obtained by taking the mean rating for the 17 body items.

Body Experience Scale. This scale was developed by the first two authors to assess dimensions of bodily experience that are absent from other body image measures. The scale consists of 14 word pairs (e.g., healthy-sick, clean-dirty) defining the positive and negative poles of 7-point scales, along which the subject rates her experience of her body. Lower scores indicate more positive experience.

Results

Most discussions of body image-depression relations have questioned the direction of effect between the two variables, without differentiating onset and persistence of depression. In order to provide continuity between the current report and the earlier literature, the more general question of body image-depression relations is addressed first. Subsequently, the etiological

significance of body image is assessed in relation to the onset and persistence of depression, independently, using stepwise discriminant analyses.

Body Image and Depression: Preliminary Analyses

A first phase of analyses determined the extent to which body image at T1 predicted depression score (expressed as a continuous variable) at T2 and, conversely, the extent to which depression score at T1 predicted body image at T2. Regression analyses are presented, rather than simple correlations, which would be adequate and comparable, in order to provide more clear a context for evaluating the results from subsequent analyses. Results were that (a) Body Cathexis at T1, $R^2 = .11$, $F = 65.15$, $p<.0001$, and Body Experience at T1, $R^2 = .08$, $F = 44.33$, $p<.0001$, each predicted Depression at T2 and (b) Depression at T1 significantly predicted Body Cathexis at T2 ($R^2 = .07$, $F = 36.52$, $p<.0001$, and Body Experience at T2, $R^2 = .04$, $F = 22.07$, $p<.0001$. These results seem to support the hypothesis that poor body image antedates and has a causal effect upon depression as well as the hypothesis that depression leads to subsequent poor body image.

The obtained results could be artifactual, however. It is possible that depression at T1 might significantly predict Body Cathexis at T2 because of some third variable, e.g., T1 Body Cathexis, which is correlated with both the predictor and outcome variables. A similar argument could be made regarding the observed relationship between T1 Depression and T2 Body Experience and between T1 Body Cathexis and/or T1 Body Experience and T2 Depression. Accordingly, a set of stepwise regression analyses was undertaken. In the first two analyses, T1 body image (Body Cathexis or Body Experience) is the predictor, entered after T1 Depression, and T2 Depression is the outcome variable. In the separate analyses, T1 Body Cathexis, $R^2 = .04$, $F = 25.13$, $p<.0001$, and T1 Body Experience, $R^2 = .02$, $F = 14.71$, $p<.0001$, both remained significant predictors of Depression at T2, though the variance accounted for by these variables is diminished relative to that reported in the initial analyses (for Body Cathexis, 4% vs. 11%; for Body Experience, 2% vs. 8%). Conversely, when Depression at T1 was entered into the equation as a predictor, after the appropriate T1 body image variable had been entered, it no longer significantly predicted to either T2 Body Cathexis or T2 Body Experience.

Thus, after controlling for pertinent sources of confounding, there is no support for the view that depression causes subsequent poor body image, and only weak support for the view that poor body image antedates or is causally related to level of depression overall. Whether body image emerges as a more potent etiological factor when questions of onset and persistence of depression are distinguished, will be examined below.

Body Image and the Onset and Course of Depression

Stepwise discriminant analyses were undertaken, given the goal of distinguishing membership in independent depression groups--(1) Stable Depressed vs. Onset Depressed and (2) Persistent Depressed vs. Remitting Depressed.

Onset. Preliminary analysis indicated a small, but significant ($p<.05$) difference at T1 in the BDI-s scores of girls who experienced an onset of depression by T2 (M at T1 = 1.76) vs. those who remained non-depressed (M at T1 = 1.21). Accordingly, in order to assess the degree to which body image at T1 discriminated Onset Depressed and Non-depressed girls, apart from the discriminating function of initial levels of depression, BDI-s scores were entered first in the discriminant analysis, followed by scores on the two body image measures, which were entered together. Results indicated that T1 BDI-s scores marginally discriminated Onset Depressed and Non-depressed groups, F (1, 280) = 3.82, $p<.06$, and accounted for 4% of the variance. Body Experience was a significant discriminator, F (2,279) = 3.75, $p<.05$, also accounting for 4% of the variance. Body Cathexis was not significant.

Persistence. As above, preliminary analysis indicated a significant difference ($p<.05$) in the BDI-s scores at T1 of depressed girls whose depression persisted (M at T1 =14.67) and depressed girls who remitted (M at T1 = 11.87). Therefore, BDI-s scores were entered first in the discriminant analysis, followed by T1 scores on the two body image measures. Results indicated that BDI-s scores at T1 significantly discriminated Persistent Depressed and Remitting Depressed groups, F (1,90) = 6.27, $p<.05$, accounting for 7% of the variance between groups. Additionally, the two body image measures were each significant discriminators (Body Cathexis, F (2,89) = 10.25, $p<0001$; Body Experience, F (3,88) = 8.50, $p<.001$), accounting for 13% and 3% of the variance, respectively, so that the amount of variance accounted for by the three measures together was 23%.

Supplementary Cross-sectional Analyses

In an earlier report (Rierdan et al., 1987), the body image scores of moderately to severely and non- to minimally depressed girls were found in cross-sectional analyses to differ significantly, and it was concluded that depressed girls had poorer body images than non-depressed girls. Longitudinal data reported here allow identification of four depression groups (Stable Non-depressed, Onset Depressed, Persistent Depressed, and Remitting Depressed) in contrast to the two groups identifiable in a cross-sectional analysis (Depressed, Non-depressed), and thus permit a more refined examination of the relation between body image and depression. Accordingly, in separate one-way analyses of variance, Body Cathexis and Body Experience scores at T1 were compared among the four depression groups identified on the basis of BDI-s scores at two points in time. Results for both Body Cathexis and Body Experience indicated a significant main effect of Depression Group (for Body Cathexis, F (3,379) = 22.68, $p<.0001$; for Body Experience, F (3,375) = 16.88, $p<.0001$). Results of post-hoc analyses (Tukey-HSD) indicated that for Body Cathexis, the score of the Persistent Depressed group (M = 2.75) differed ($p<.05$) from each of the other three groups (Stable Non-depressed, M = 2.03; Onset Depressed, M = 2.19; Remitting Depressed, M = 2.15), which did not differ among themselves. For Body Experience, the score of the Persistent Depressed group (M = 3.21) also differed ($p<.05$) from each of the other three groups (Stable Non-depressed, M = 2.65; Onset Depressed, M = 2.91; Remitting Depressed, M = 2.75) and, in addition, the Onset Depressed group differed from ($p<.05$) the Stable Non-Depressed group. Thus, longitudinal data permit a more

precise statement of the relation between body image and depression: Girls who are persistently depressed have poorer body images than girls who are transiently depressed or non-depressed.

Discussion

The results of this study demonstrate that knowing how depressed girls evaluate their bodies significantly increases our ability to distinguish girls for whom depression will be a persistent disorder from girls for whom depression will be a transient condition.[1] In contrast, knowing how non-depressed girls evaluate their bodies does not contribute greatly to our ability to identify girls at risk for depression. A relatively positive body image, then, does not seem to offer substantial protection against the occurrence of depression, although it does seem to decrease the likelihood that depression will be persistent.

In addition to clarifying the importance of body image for predicting the persistence of depression, the longitudinal data from this study also permit refinement of earlier formulations (Noles et al., 1985; Rierdan et al., 1987; Teri, 1982) about body image-depression relations which were based on cross-sectional data: Poor body image is more characteristic of persistently depressed girls, than it is of transiently depressed, or non-depressed girls. It will be of interest to reexamine reports of relations between depression and other variables often reported as correlates, e.q., anxiety, self-esteem, and locus of control, to name but a few, to determine if findings of differences between non-depressed and depressed groups apply to both persistently and transiently depressed subgroups.

In considering the results of this study, three theoretical issues need to be addressed: (1) Among persistentlyly depressed girls, what accounts for their poor body image; (2) Among persistently depressed girls, what is the mechanism by which poor body image might be causally related to subsequent persistent depression; (3) Why is poor body image more important to explaining the persistence, rather than the onset, of depression.

Body image pertains generally to how individuals view and assign meaning to their own bodies (Fisher, 1986). Implicit in this definition is the notion that body image will differ across ages and cultures and with variations in actual body functioning, appearance, and maturational status. Biological, psychological, and social factors, then, contribute to body image. It may be that persistently depressed adolescents have, indeed, a different body experience than transiently depressed adolescents, based on deficiencies at the level of neurotransmitters (Baldessarini, 1985), and experienced in terms of somatic symptoms such as fatigue, sleep disorder, and appetite disorder. Such variations in body functioning may be taken directly by girls, consciously and unconsciously, as a basis for body devaluation, and/or may

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[1]It is assumed that results reflect the impact of body image on the course of depression over and above the influence of measurement error associated with repeated administration of the BDI-s.

contribute indirectly to poor body image as the adolescent girl internalizes critical social judgments of her behavior and physical appearance. The development of poor body image in this way may then contribute quite directly to persistent depression, given the importance for adolescents of body image in the development of self-concept (Schonfeld, 1969).

The findings that persistently depressed girls have poor body image, together with the above speculation, suggest that treatment of depressed adolescent girls might profitably be focussed, in part at least, on body image. This might be through use of anti-depressant medication, with its direct action on levels of neurotransmitters (Baldessarini, 1985), through exercise programs, which have been associated with increased levels of neurotransmitters (Sinyor, Schwartz, Peronnet, Brisson, & Seraganian, 1983) as well as with increased body satisfaction (Joestling, 1981) and decreased depression (McCann & Holmes, 1984); and through therapeutic discussion and increased understanding of idiosyncratic as well as culturally based beliefs about the body which have been assimilated by persistently depressed girls.

After speculating about the origin of the poor body image of persistently depressed girls, and of the mechanism by which such body image might be associated with enduring depression, the question remains as to why poor body image was not found to discriminate girls about to become depressed from girls consistently non-depressed, i.e., why poor body image was not found to predict the onset of depression. One possibility is that in this study the Onset Depressed group actually was comprised of two subgroups of girls--girls who would be seen in time to be transiently depressed and girls who would be seen in time to evidence persistent depression. This could be clarified in an investigation with three or more data points. In such a long-term investigation, study of the onset of depression could entail discriminating three groups--girls consistently non-depressed, girls experiencing onset (then remission) of transient depression, and girls experiencing onset of persistent depression. With such groups, it would be possible to determine if poor body image is associated, as is hypothesized, with the onset of persistent, but not transient, depression.

In considering the role of body image in the onset and course of depression, we must consider the extent to which findings from this study may be generalized across gender and age. In an earlier study, Rierdan et al. (1988) found that for boys as well as for girls, poor body image was associated with depression. Further, in studies of late (Lerner, Karabenick, & Stuart, 1973), as well as early adolescents (Petersen, Schulenberg, Abromowitz, Offer, & Jarcho, 1984), body image has been found to be significantly related to self-concept, more generally. Accordingly, we would expect to obtain results comparable to those reported in the present study in investigations with boys and with older adolescents and adults as well.

The pattern of results in this study demonstrates the heuristic value of discriminating questions of onset and course of adolescents girls' depression in longitudinal investigations. The importance of body image in the etiology of girls' depression would have been seriously underestimated, as well as misconstrued, if analyses had been restricted to assessing the relation between body image and presence of depressive symptoms (as was reported at the

beginning of the Results Section) or between body image and simply the onset of depression. In longer term prospective studies it will be useful to include study of subjects with patterns of recurrent depression as well as subjects who are transiently (one episode) depressed and persistently depressed.

The results of this study have implications for conceptualizing different subtypes of depression and for framing questions concerning their etiology. While depression is operationalized in this study in terms of self-report of symptoms, and subgroups are differentiated in terms of persistence of symptoms, other clinicians and investigators diagnose different depressive syndromes by reference to persistence and/or severity of symptoms and/or presence of likely stressors. (All three of the above criteria are employed in DSM-III-R (APA, 1987) wherein categories of Major Depression, Dysthymic Disorder, and Adjustment Disorder with Depressed Mood are distinguished). Data from this study and others (e.g., Kovacs et al., 1984) validate a distinction among subgroups of depression and support the view that the focus of theoretical inquiry regarding adolescent depression needs to be shifted from asking which hypothesis about etiology is confirmed, to asking for which subgroup, or in what context, different hypotheses about adolescent depression are validated (Baehrs, 1986).

In keeping with theoretical expectations, it was found that valuation of body image contributed to, but did not uniquely cause, the onset or persistence of depression. Since the two measures of body image employed here contributed differentially to prediction of the persistence of depression, it may be that other aspects of body image, related perhaps to psychosexual maturity (cf., Peto, 1972) or accuracy of perceived body dimensions (Fisher, 1986), may also contribute to discriminating non-depressed adolescent girls from different subgroups of their depressed peers. Nevertheless, it seems clear that depression is too complex a disorder (or disorders) to be explained by the action of a single radical cause. It is wise to learn from the decades of research and metatheoretical writings concerning the etiology of other mental health problems, such as schizophrenia (e.g., Handlon, 1960; Zubin & Spring, 1977), and to adopt the perspective that an understanding of the etiology of adolescent depression will entail a complex interactive model, involving a number of biological, psychological, and/or social variables.

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References

American Psychiatric Association. (1987). Diagnostic and statistical manual of mental disorders (3rd ed., Revised). Washington, DC: Author

Baldessarini, R. (1985) Chemotherapy and psychiatry: Principles and practice. Cambridge: Harvard University Press.

Beahrs, J. O. (1986). Limits of scientific psychiatry: The role of uncertainty in mental health. New York: Brunner/Mazel.

Beck, A. T., & Beck, R. W. (1972). Screening depressed patients in family practice-A rapid technic. Postgraduate Medicine, 52, 81-85.

Cicchetti, D., & Schneider-Rosen, K. (1984). Toward a transactional model of childhood depression. In D. Cicchetti & K. Schneider-Rosen (Eds.), Childhood depression (pp. 5-27), New Directions for Child Development, no. 26. San Francisco, CA: Jossey-Bass.

Fisher, S. (1986). Development and structure of the body image (Vols. 1-2). Hillsdale, NJ: Lawrence Erlbaum Associates.

Goldberg, B., & Folkins, C. (1974). Relationship of body-image to negative emotional attitudes. Perceptual and Motor Skills, 39, 1053-1054.

Handlon, J. H. (1960). A metatheoretical view of assumptions regarding the etiology of schizophrenia. Archives of General Psychiatry, 2, 43-60.

Joesting, J. (1981). A comparison of students who exercise with those who do not. Perceptual and Motor Skills, 53, 426.

Kovacs, M., Feinberg, T. L., Crouse-Novak, M. A., Paulauskas, S. L., & Finkelstein, R. (1984). Depressive disorders in childhood. I. A longitudinal prospective study of characteristics and recovery. Archives

of General Psychiatry, 41, 229-237.

Lerner, R. M., Karabenick, S. A., & Stuart, J. L. (1973). Relations among physical attractiveness, body attitudes, and self-concept in male and female college students. Journal of Psychology, 85, 119-129.

Marsella, A. J., Shizuru, L., Brennan, J., & Kameoka, V. (1981). Depression and body image satisfaction. Journal of Cross-Cultural Psychology, 12, 360-371.

McCann, I. L., & Holmes, D. S. (1984). Influence of aerobic exercise on depression. Journal of Personality and Social Psychology, 46, 1142-1147.

Noles, S. W., Cash, T. B., & Winstead, B. A. (1985). Body image, physical attractiveness, and depression. Journal of Consulting and Clinical Psychology, 53, 88-94.

Petersen, A. C., Schulenberg, J. E., Abramowitz, R. H., Offer, D., & Jarcho, H. D. (1984). A self-image questionnaire for young adolescents (SIQYA): Reliability and validity studies. Journal of Youth and Adolescence, 13, 93-111.

Peto, A. (1972). Body image and depression. International Journal of Psychoanalysis, 53, 259-263.

Rierdan, J., Koff, E., & Stubbs, M. L. (1987). Depressive symptomatology and body image in adolescent girls. Journal of Early Adolescence, 7, 205-216.

Rierdan, J., Koff, E., & Stubbs, M. L. (1988). Gender, depression, and body image. Journal of Early Adolescence, 8, 109-117.

Schonfeld, W. A. (1969). The body and the body-image in adolescents. In G. Caplan & S. Lebovici (Eds.), Adolescence: Psychosocial perspectives (pp. 27-53). New York: Basic Books.

Secord, P., & Jourard, S. (1953). The appraisal of body-cathexis: Body cathexis and the self. Journal of Consulting Psychology, 17, 343-347.

Simmons, R., & Rosenberg, F. (1975). Sex, sex roles, and self-image. Journal of Youth and Adolescence, 4, 229-258.

Sinyor, D., Schwartz, S. G., Peronnet, F., Brisson, G., & Seraganian, P. (1983). Aerobic fitness level and reactivity to psychosocial stress: Physiological, biochemical, and subjective Measures. Psychosomatic Medicine, 45, 205-217.

Sroufe, L. A., & Rutter, M. (1984). The domain of developmental psychopathology. Child Development, 55, 17-29.

Teri, L. (1982). Depression in adolescence: Its relationship to assertion and various aspects of self-image. Journal of Clinical Child Psychology, 11, 101-106.

Tobin-Richards, M. H., Boxer, A. M., & Petersen, A. C. (1983). The psychological significance of pubertal change. In J. Brooks-Gunn & A. C. Petersen (Eds.), Girls at puberty (pp. 127-154). New York: Plenum.

Zubin, J., & Spring, B. (1977). Vulnerability: A new view of schizophrenia. Journal of Abnormal Psychology, 56, 103-126.

Footnotes

1.A larger number of girls provided test data one time only on the Fall test occasion; a portion of these data were reported in Rierdan et al. (1987).

2.In the first equation, with Body Cathexis as the predictor, $B = 3.03$, $t = 8.07$, $p<.0001$; in the second equation, with Body Experience as the predictor, $B = 2.83$, $t = 6.66$, $p<.0001$.

3.In the first equation, with depression predicting to Body Cathexis, $B = .03$, $t = 6.04$, $p<.0001$; in the second equation, with depression predicting to Body Experience, $B = .02$, $t = 4.70$, $p<.0001$.

4.For Body Cathexis, $B = 1.79$, $t = 5.01$, $p<.0001$.

5.For Body Experience, $B = 1.51$, $t = 3.84$, $p<.0001$.

6.Prior probabilities, to reflect unequal n's in the depression groups, as noted in the Methods section, are not used during the analysis stage; they are used in establishing classification results.